

HAI

Work Order ID 65598

January 20, 2011 10:55:16 AM

Page 1

Item ID: D4058-2

Accept

Setup Start

Revision ID:

Stop

Item Name: Ski Section, Fwd RH

Start Date: 1/20/11 Start Qty: 1.00

Cust Item ID:

Required Date: 1/27/11 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan: CYDate: 11/01/20

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D4058

A

100

0.00



Machine Set-up

0.00

HandThermo

Memo

Hand Finishing Thermoforming

Load program D4058 and set-up clamping frame as per folio FTA074

Wh
11/01/20

105

0.00



Cut Material

0.00

HandThermo

Memo

Hand Finishing Thermoforming

Cut Blanks to fit frame size

Wh
11/01/24

SRP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65598

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Page 2

Item ID: D4058-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Ski Section, Fwd RH

Start Date: 1/20/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/27/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

0.00



HandThermo

Dry Material

Memo

0.00

Hand Finishing Thermoforming

Dry Sheet as per QSI022 ALEXTRA

Temp: 240° FTime IN: 2:00 pm11/01/22Time OUT: 2:00 am11/01/24Wh
11/01/24

120

0.00



Thermoform

Thermoforming

Memo

0.00

Thermoforming Machine

Thermoform as per Dwg. D4058-1 and Folio FTA074 using tool DT 9600

Dwg. Rev. AFolio Rev. BSt
11/01/24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65598

January 20, 2011 10:55:16 AM



Page 3

Item ID: D4058-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Ski Section, Fwd RH

Start Date: 1/20/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/27/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130	QC2- Inspect parts off machine FAI/FAIB	0.00							
-----	---	------	--	--	--	--	--	--	--



QC	Memo	0.00							
----	------	------	--	--	--	--	--	--	--

Quality Control	Visually inspect for proper formation of each part								
-----------------	--	--	--	--	--	--	--	--	--

11/01/24

140	QC8- Inspect parts - second check	0.00							
-----	-----------------------------------	------	--	--	--	--	--	--	--



QC	Memo	0.00							
----	------	------	--	--	--	--	--	--	--

Quality Control									
-----------------	--	--	--	--	--	--	--	--	--

11/01/24

150	Trim & Drill	0.00							
-----	--------------	------	--	--	--	--	--	--	--



HandThermo	Memo	0.00							
------------	------	------	--	--	--	--	--	--	--

Hand Finishing Thermoforming	1-Trim to Finished Dimensions as per dwg D4058-1								
------------------------------	--	--	--	--	--	--	--	--	--

	2- Use 1.25" unibit to drill suction relief holes if required								
--	---	--	--	--	--	--	--	--	--

	3-Use .375" unibit to drill wearplate and clamp mounting holes as per dwg								
--	---	--	--	--	--	--	--	--	--

11/01/27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65598

January 20, 2011 10:55:16 AM



Page 4

Item ID: D4058-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Ski Section, Fwd RH

Start Date: 1/20/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/27/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

160

0.00



Anneal material

0.00

HandThermo

Memo

Hand Finishing Thermoforming

Anneal trimmed & drilled product
at 250 deg. F. for 75 minutes & allow to cool in oven.

Time In: 750° 8:15 am

Oven Off: 9:30 am.

Sh.
11/01/11

170

0.00



QC6- Inspect dimensions to drawing

0.00

QC

Memo

Quality Control

Check dimensions to ensure conformity to drawing tolerances.

ala
8/10/11
not needed

Sh.
11/01/11

180

0.00



QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

Quality Control

8/10/11

Sh.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D4058-2 PAR #: N/A Fault Category: Thermal NCR: Yes No DQA: NA Date: 11-03-01
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65598

January 20, 2011 10:55:16 AM



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Item ID: D4058-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Ski Section, Fwd RH

Start Date: 1/20/11 Start Qty: 1.00



Cust Item ID:

Required Date: 1/27/11 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

190

Identify as per dwg & Stock Location: TURN

0.00

Batch #65604



Packaging

Memo

0.00

11/02/02

200

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Scrap

Quality Control

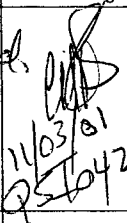
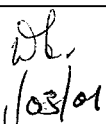
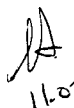
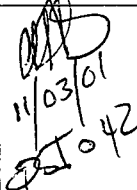

0170086

MF
11-02-28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
11/03/01	200						

Part No: D4058-2 PAR #: N/A Fault Category: Thermal NCR: ☒ Yes ☐ No DQA: ls Date: _____

Resolution: Scrap Disposition: Scrap QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/03/01	200	Product Discontinued	 11/03/01 Q51042	Scrap 1- D4058-2 1- D4059-2 Retain for R&D	 11/03/01	 11.03.03	 11/03/01 Q51042	 11.03.03

NOTE: Date & initial all entries

Picklist Print

Page 1

January 20, 2011 10:55:15 AM

Work Order ID: 65598



Parent Item: D4058-2



Parent Item Name: Ski Section, Fwd RH

Start Date: 1/20/11

Required Date: 1/27/11

Start Qty: 1.00

Required Qty: 1.00

Comments: New Issue 10/03/16 Rev. A DL verified by:DD IPP Rev B.
Improved process Add Step 105 (Drying) & 145 (Annealing) to routings
10/03/31 DL

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

M-ALXTRAB-S.300

Purchased

No

sf

336.6290

25.64



Alextra ET 0.300 sheet

Location

Loc Qty

Loc Code

therm

336.629

336.629

113108

25.64 sq ft

11/01/27 ✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	65598
Description:		Part Number:	
Inspection Dwg:	Rev:	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST
THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Inside Radii less than "	✓			
Shape Definition	✓			
Texture Retention	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by: WJ **Date:** 11/01/24

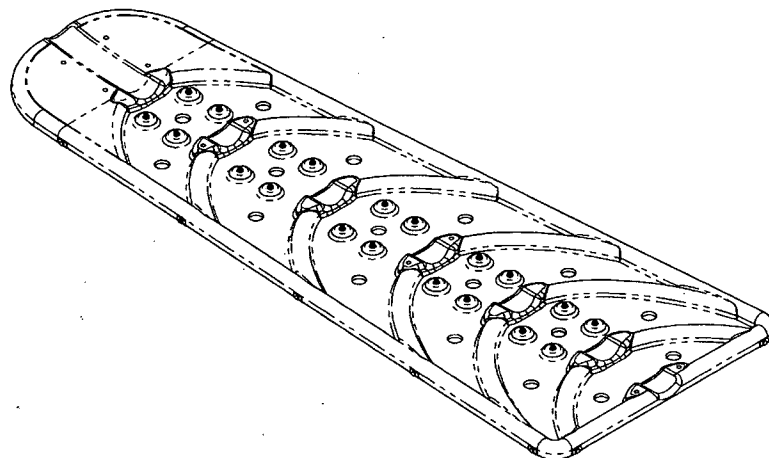
TRIMMING SECTION

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø 1.25	±0.035	1.36"	✓			
1.31	Ref.	1.33"	✓			
Ø 0.38	0.006	0.377"	✓			
2.5"	±0.030	2.5"	✓			
5.0"	±0.030	5.0"	✓			
Ø 0.210"	MIN	0.265"	✓			
Ø 0.175"	MIN	0.250"	✓			

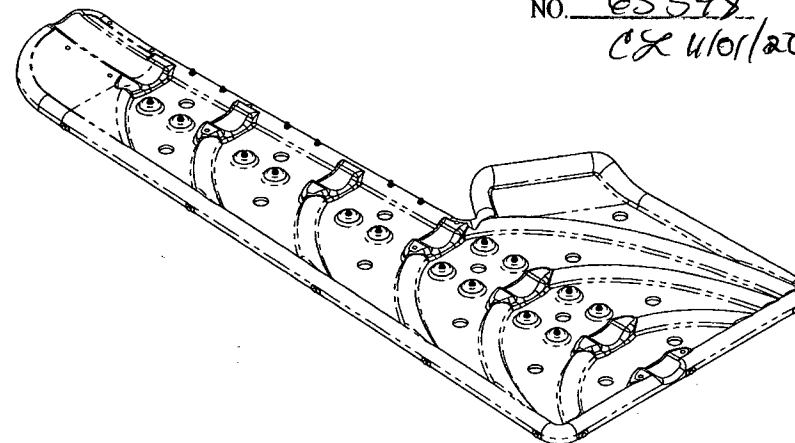
Measured by: WJ **Date:** 11/01/24
Audited by: JB **Date:** 11/01/27
Preliminary Approval: **Date:**

Rev	Date	Change	Revised by	Approved
B	10.04.14	Added preliminary approval	KJ	

10.04.14



D4058-041 FWD SKI ASSY, LH



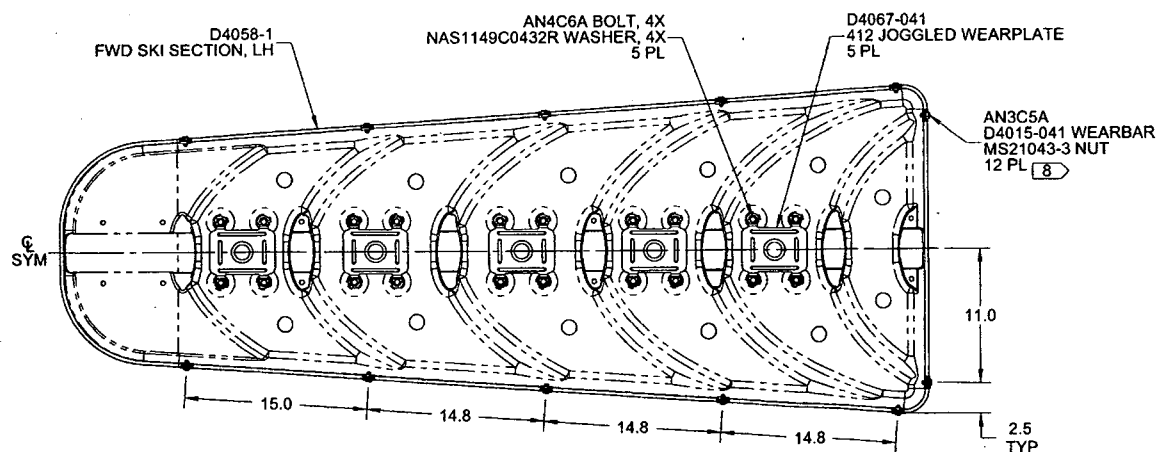
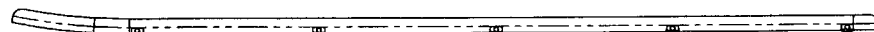
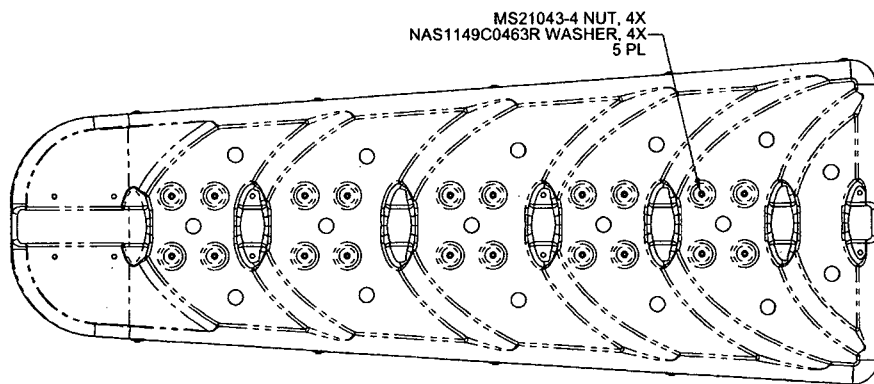
D4058-042 FWD SKI ASSY, RH

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WITHOUT NOTICE
WORK ORDER
NO. 65598
CS 4/6/20

RELEASED
2010-04-07
AND

A		NEW ISSUE		DESCRIPTION		MB	10.03.31
REV.						BY	DATE
DESIGN				DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWN							
CHECKED				DRAWING NO.			REV. A
MFG. APPR.				D4058			SHEET 1 OF 6
APPROVED				TITLE			SCALE
DE APPR.				FWD SKI ASSY			NTS
DATE				10.03.31			

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D4058-041 FWD SKI ASSY, LH

ITEM	QTY -041	P/N	DESCRIPTION
1	X	D4058-041	FWD SKI ASSY, LH
2	12	D4015-041	WEARBAR
3	1	D4058-1	FWD SKI SECTION, LH
4	5	D4067-041	412 JOGGLED WEARPLATE
5	12	AN3C5A	
6	20	AN4C6A	BOLT
7	12	MS21043-3	NUT
8	20	MS21043-4	NUT
9	20	NAS1149C0432R	WASHER
10	20	NAS1149C0463R	WASHER

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WORK ORDER
NO. 65578

RELEASED
2010-04-07
JMP

D4058-041 NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 28.5 lbs
- 8) LOCATE D4015-041 (ITEM 2) AS SHOWN.
TRANSFER DRILL Ø0.191" HOLE FROM D4015-041 TO D4058-1.
CHAMFER HOLE 0.03 X 45°.
FASTEN USING PRESCRIBED HARDWARE
- 9) TORQUE: AN3 NUTS = 15-20 in-lb
AN4 NUTS = 50-70 in-lb

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO. D4058	REV. A
MFG. APPR.		TITLE	SHEET 2 OF 6
APPROVED		FWD SKI ASSY	SCALE
DE APPR.			NTS
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8

7

6

5

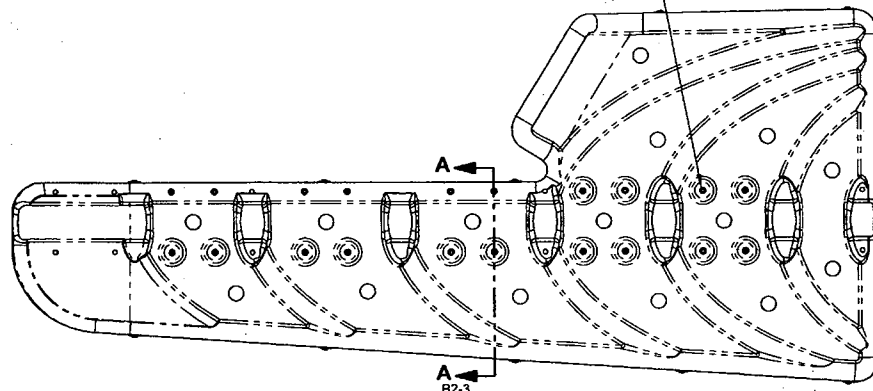
4

3

2

1

NAS1149C0463R WASHER, 4X
MS21043-4 NUT, 4X
5 PL



D4058-2
FWD SKI SECTION, RH

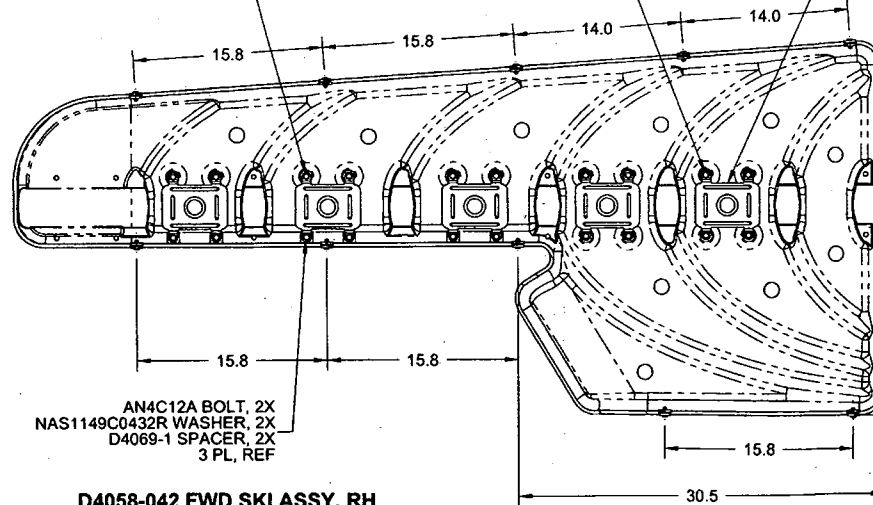


AN4C6A BOLT, 2X
NAS1149C0432R WASHER, 2X
3 PL, REF

AN4C6A BOLT, 4X
NAS1149C0432R WASHER, 4X
2 PL

D4067-041
412 JOGGLED WEARPLATE
5 PL

AN3C5A
D4015-041 WEARBAR
MS21043-3 NUT
13 PL



AN4C12A BOLT, 2X
NAS1149C0432R WASHER, 2X
D4069-1 SPACER, 2X
3 PL, REF

D4058-042 FWD SKI ASSY, RH

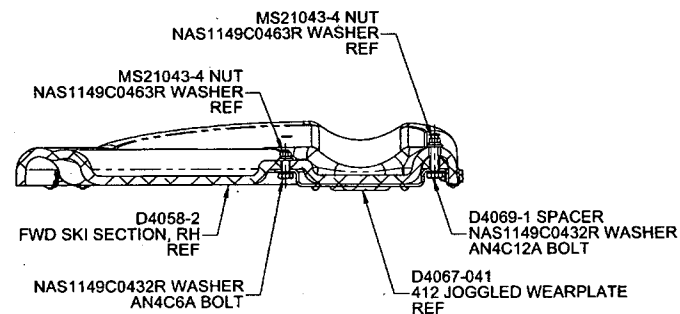
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WORK ORDER

NO. 65598

2.5
TYP

ITEM	QTY -042	P/N	DESCRIPTION
1	X	D4058-042	FWD SKI ASSY, RH
2	13	D4015-041	WEARBAR
3	1	D4058-2	FWD SKI SECTION, RH
4	5	D4067-041	412 JOGGLED WEARPLATE
5	6	D4069-1	SPACER
6	14	AN4C6A	BOLT
7	13	MS21043-3	NUT
8	20	MS21043-4	NUT
9	13	AN3C5A	BOLT
10	6	AN4C12A	BOLT
11	20	NAS1149C0432R	WASHER
12	20	NAS1149C0463R	WASHER



SECTION A-A C6-3
ROTATED 90° CW, SCALED 4X
6 PL

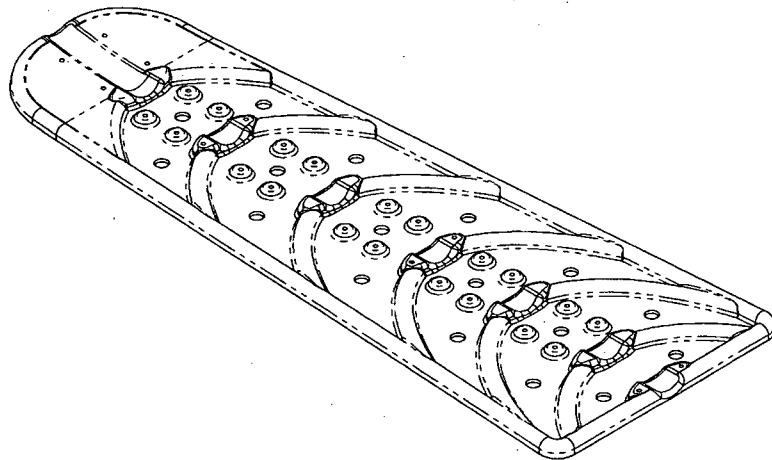
D4058-042 NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 23.5 lbs
- 8) LOCATE D4015-041 (ITEM 2) AS SHOWN.
TRANSFER DRILL $\phi 0.191$ " HOLE FROM D4015-041 TO D4058-2.
CHAMFER HOLE $0.03 \times 45^\circ$.
FASTEN USING PRESCRIBED HARDWARE
- 9) TORQUE: AN3 NUTS = 15-20 in-lb
AN4 NUTS = 50-70 in-lb

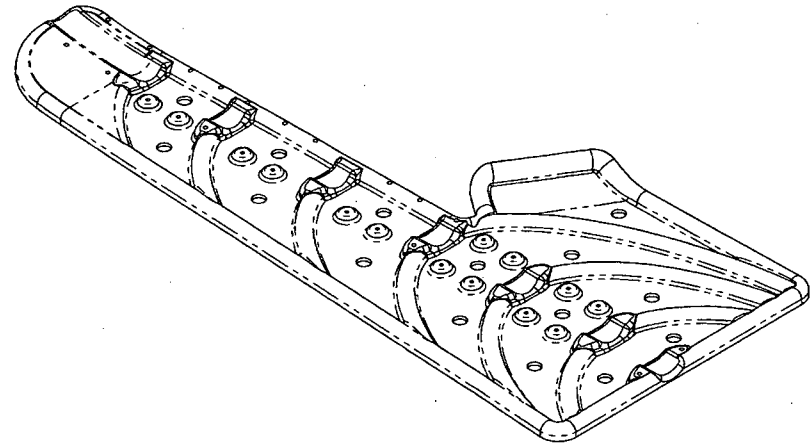
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO. D4058	REV. A
MFG. APPR.			SHEET 3 OF 6
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DE APPR.		FWD SKI ASSY	NTS
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2010-04-03

8 7 6 5 4 3 2 1



D4058-1 FWD SKI SECTION, LH



D4058-2 FWD SKI SECTION, RH

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NO. 65598

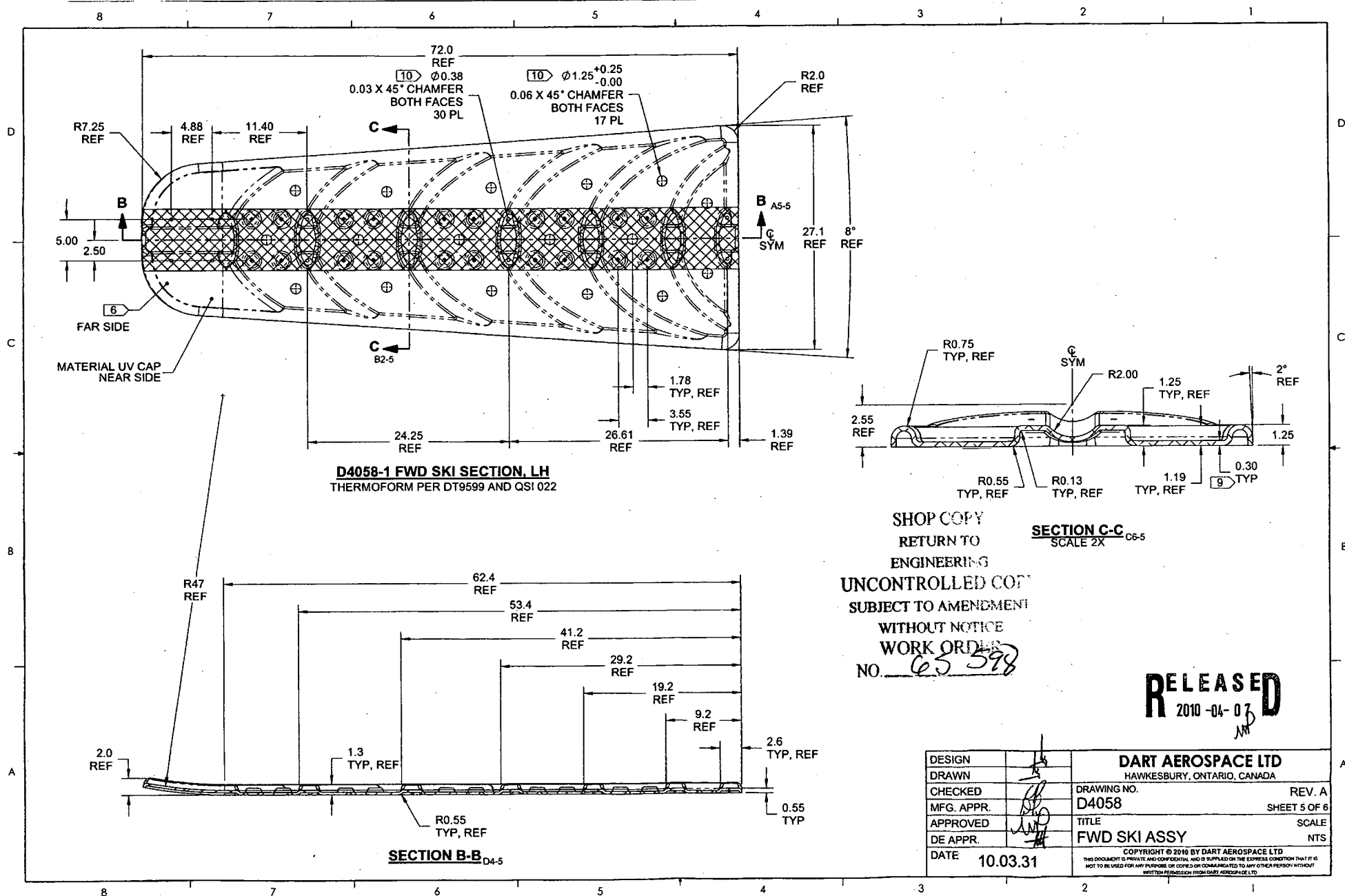
D4058-1/2 NOTES:

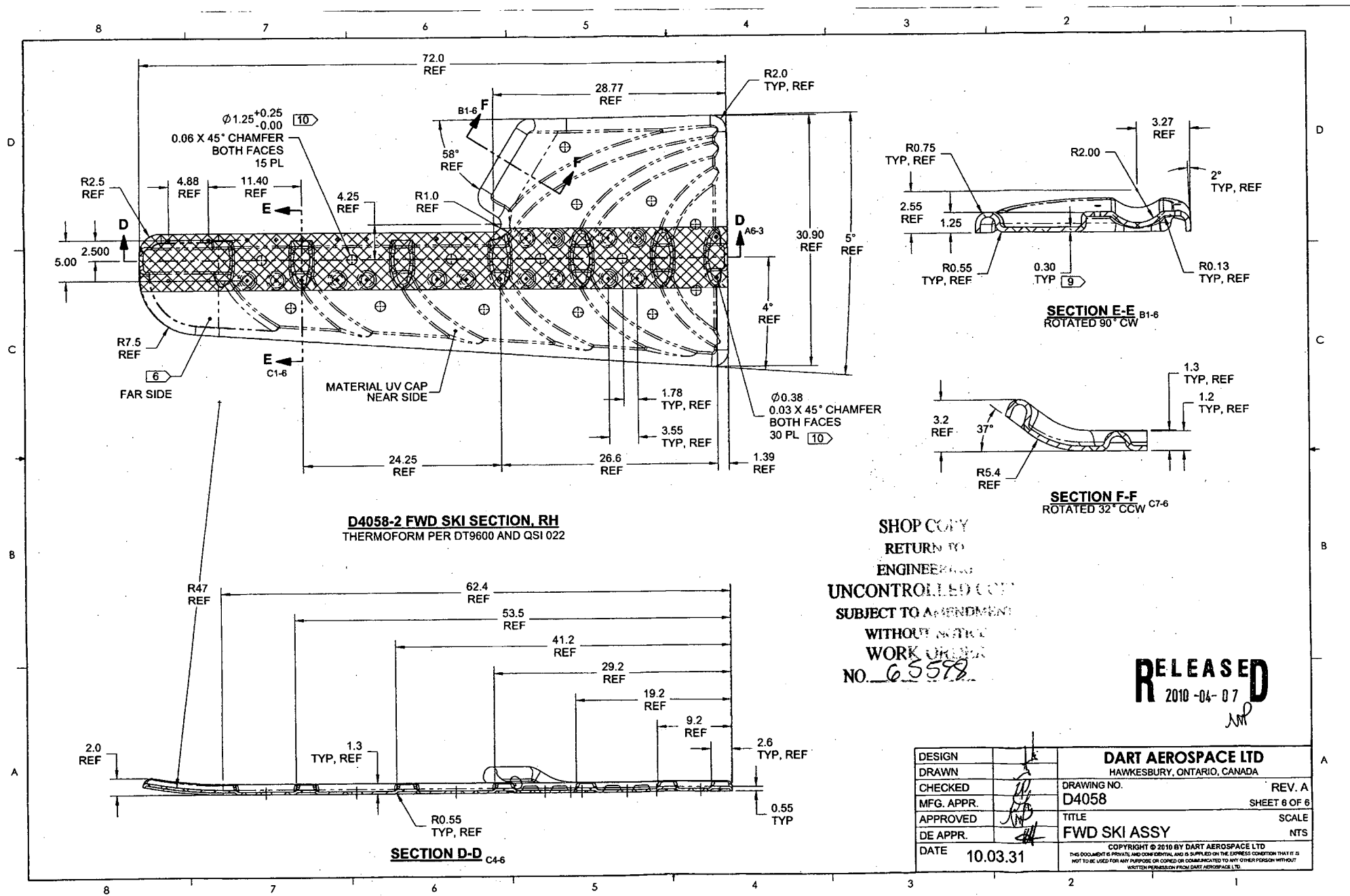
- 1) MATERIAL: ALEXTRA ET SHEET, 0.300 THICK
REF. DART SPEC. M-ALXTRAB.300
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4058-X" AND B/N USING VIBRATING STYLUS
- 7) WEIGHT: D4058-1 = 24.35 lbs, D4058-2 = 22.25 lbs
- 8) THERMOFORMING: PER DT9599 (D4058-1) OR DT9600 (D4058-2) AND DART QSI 022
- 9) MINIMUM THICKNESS: IN SHADED AREA = 0.210
OUTSIDE SHADED AREA = 0.175
- 10) PICK UP ON EXISTING MOLD MARKINGS AND DRILL THRU AS SHOWN

RELEASED
2010-04-07

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4058	SHEET 4 OF 6
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8 7 6 5 4 3 2 1





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